



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

flowers, with pinnate leaves, hairy and procumbent stem, and is one of the most attractive flowers of the region. The *Juglans rupestris* grows sparingly along the roads, and a tall *Acacia* (*A. hirta*?) with a straight branching stem, round bunches of white flowers and finely pinnate leaves, is quite common.

These are some of the plants which, in a short period of time, and at an unfavorable season of the year, can be found in the vicinity of this, one of the oldest settlements of America. I have by no means noticed all the species collected there, for I have not yet had an opportunity to identify them, and there are no doubt many more species to be found by one spending a year at the place. I have been informed by those who know, that during the summer rains many plants spring up, bloom for a short time and disappear for the remainder of the year. Among the species to be found here are doubtless many which are Mexican forms; but this is nothing strange, for the whole of the flora of Southern California, Arizona and New Mexico belongs to the Mexican region. The climate and geographical features of all are very similar; dry and barren plateaus and mountains, where little rain ever falls and where the heat in summer is very intense; with few streams to water the soil, and these few having an uncertain existence, the beds being nearly dry the greater part of the year. Cloud bursts, waterspouts and sand storms are characteristic of the whole country, and any division which can be made will place Upper Mexico, Arizona, New Mexico and Southern California in the same zoölogical and botanical region.

—:o:—

## EDITORS' TABLE.

EDITORS: A. S. PACKARD, JR., AND E. D. COPE.

— The scope and aim of the biological sciences are embraced by their two great primary divisions, phylogeny and physiology. Phylogeny states the history and manner of the creation of beings possessed of life, while physiology exposes the forces which are active in creation and other functions of life, and sets forth their *modus operandi*.

All biological research contributes to one or the other of these departments. There are two branches essential to the development of phylogeny, viz: embryology and palæontology. The essential preliminary to both of these sciences is, of course,

anatomy (including histology), or in other words, analysis of structure. A rational résumé of anatomy is taxonomy, or systematic zoölogy and botany. For the great department of physiology, knowledge of both physics and chemistry is necessary; and here the biological and physical sciences have their natural inosculation.

The student who is desirous of making a life-work of biological science, will often be at a loss to decide as to the best line of research for him to undertake. Circumstances of an incidental character generally determine his course for him. Such circumstance is the influence of a scientific friend; or the brilliant work of some able man who renders a department attractive. Fashion, which is seen in scientific as in other fields, will sometimes give the direction; but the most usual determining agent is the material for study which may lie most conveniently near the student's hand. Every department has its attractions, and nature presents to the appreciative intellect an *embarras des richesses*, in whatever direction it turns its view.

The science of physiology is the most difficult of prosecution, and has, on this account, made less progress than some of the other branches. Its results, having a direct practical bearing besides their scientific value, awaken greater popular interest than those in almost any other department. The successful physiologist will have many rewards, but his labors will often, like those of Sisyphus, be without satisfactory results.

The study of anatomy is open to all, and in an infinitude of directions. Every biologist must master as many of its details as are necessary as a foundation for a superstructure of one of the other branches. The pure anatomist who correctly portrays the mechanism of living machines, places all other biologists under obligations to him. But before the anatomist can proceed intelligently, he must have a preliminary idea of the character of the animal or plant he investigates. This is first determined by a consideration of the external anatomy of large numbers of species, which is the work of the systematic biologist. Of course the full expression of the relationships, as shown by the resemblances and differences of species, cannot be had until the whole anatomy is known. The first work of the taxonomist is therefore necessarily imperfect, and partly on this account it is the fashion in some quarters to speak lightly of his labors. It is, however, true that taxonomy cannot be done without;<sup>1</sup> also, that when the anatomy, as in the higher animals, develops a great many terms whose relations are to be properly expressed, it requires no mean order of intellect to solve the problem thus presented to it.

<sup>1</sup>Linnaeus says (*Philosophia Botanica*, p. 202): "Botanicus tyro novit classes; candidatus omnia genera; magister plurimas species. Quo plures Botanicus noverit species, eo etiam præstantior est. Cognitione specierum innititur omnis solida eruditio physica, œconomica, medica; immo omnis vera cognitio humana."

Judging from results in this field, this kind of ability is not common, for the most admirable observers are frequently quite unable to appreciate the taxonomic bearings of the facts they have brought to light.

The sciences of palæontology and embryology contribute equally to a true phylogeny, which is already indicated by taxonomy. It is difficult to decide which of these departments is the more attractive. The naturalist who lives in a region where well preserved fossils are abundant, will not weary of exploring the horizons within his reach, and of tracing the structure and affinities of the forms he discovers. A few feet of rock will often separate faunæ more distinct in their characters than those which now inhabit the most widely separated regions of the earth. An expedition of a few miles will yield results of greater importance than the exploration of the fauna of entirely new regions of the earth's surface.

The disadvantages of this pursuit are the generally imperfect character of the remains of ancient life; and secondly, in the case of the vertebrate animals, the expense involved in obtaining them.

The student of embryology, like the anatomist, has his material on every hand. If he take the pains, he can observe the most wonderful phenomenon the world affords, the development of a complex being from a single cell. In the successive stages of growth he will trace the impress of ancient environments, and will read the outlines of the history of descent only less perfectly than the palæontologist. Although embryological study is possible everywhere, it involves much patient and laborious manipulation; more so than any other department, excepting physiology. Its rewards are, however, great.

In the outset of their career, naturalists are often perplexed as to the question of ways and means. To those who must seek a livelihood, two courses are open. One is the practice of medicine, which is a pursuit generally congenial to the biologist, and one which will at least sustain life, and permit of some leisure time for study. The other, and to our thinking preferable course, is the pursuit more distinctively that of the naturalist, teaching his favorite subject. He thus makes it his business, which shall support him. The number of colleges and universities in the United States is large, and is increasing. Each of these must have, sooner or later, a professor of natural sciences. The salaries will often be small, but the investigator desires time rather than money. The supposed necessity for a large income has extinguished many a promising biologist. So long as financial prosperity, rather than intellectual accomplishments and ability, gives position, this will continue to be the case. We hope and believe, however, that it will not be long before intellectual development will have so far progressed in America as to reverse this

order of precedence in the estimation of the general public, and that it will give to the man who produces knowledge, the high position he has always held in the minds of the thoughtful of the human race.

—:O:—

## RECENT LITERATURE.

TYLOR'S ANTHROPOLOGY.<sup>1</sup>—It is only within some twenty years or a little over a generation, that under the enlarged mode of studying nature for which we are indebted to Darwin and others, as well as to German embryologists and histologists, particularly those who have worked from an evolutionary point of view, that the science of biology has become well established. Modern physics has recently discovered the law of the conservation of force and other doctrines which have so enlarged the sphere of the physicist. Hand in hand with the genesis of biology went on the development and perfection of the nebular hypothesis, and the rise of a new school in geology, the uniformitarian; while at only a late date has the science of meteorology assumed a definite shape, and later still the science of comparative psychology and sociology. The youngest of the sciences, of which this book is an exposition, is a logical outcome of all the sciences bearing upon life and the physics of the earth, the residence of man. In the fullness of time there has arisen a science of man, or anthropology, the synthesis or flower of all the sciences. Such a science could not have come into existence were not the keystone of the arch supporting it the doctrine of evolution. Old-fashioned ethnologists could go on indefinitely, measuring skulls and classifying the races of mankind, archæologists could industriously unearth forgotten graveyards and buried cities, till every foot of soil on the globe had told its tale of dead dynasties and forgotten cities, but unless a working theory of development from the general to the special, from the crude and unfinished to the perfected; unless different and successive early stages were looked upon as initiatory, as only existing to give rise to something more composite, highly finished and enduring, we could not have had the science of anthropology.

It is from the point of view of progress and growth, of elaboration from simple beginnings, and the origin of the composite manners and customs of modern civilization from the aboriginal arts and habits of savage life, that the new science of anthropology is to be built up and perfected.

Just as the study of the embryology of Ascidians and of the *Amphioxus* has well nigh revolutionized our conceptions of the vertebrate type, and man's structure can only be understood by a

<sup>1</sup> *Tylor's Anthropology*: An introduction to the study of Man and Civilization. By EDWARD B. TYLOR, D.C.L., F.R.S. With illustrations. New York: D. Appleton & Co., 1881. 8vo, pp. 448.